

Peer Assisted Learning: A New Teaching Approach in Undergraduate Medical Students

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ABSTRACT

Introduction: Peer Assisted Learning (PAL) is an innovative teaching learning tool where people from similar social groupings, who are not professional teachers, help each other to learn. Medical Council of India (MCI) recommends improving quality of training of Indian Medical Graduates (IMG) by expanding the role of doctors/IMGs from clinician to communicator, leadership and member of the healthcare team.

Aim: To introduce peer assisted learning as new teaching and learning method in first year medical students and to compare the impact of this method on learners with traditional method of learning by Objective Structured Practical Examination (OSPE).

Materials and Methods: In this observational study, first year MBBS students were randomly divided into two groups- the regular module and PAL module. In regular module, the students were taught by the faculty. In PAL module, the students were taught by a previously trained final MBBS students. In PAL

module, senior medical students were trained on the clinical-practical topic to be taught. After training, the senior medical students taught their juniors. In the regular module, the junior students were taught the same clinical practical topic by the faculty. At the end of the session, the students were assessed by OSPE. Paired t-test was used for assessing effectiveness of educational methods. The p-value <0.05 was considered statistically significant.

Results: Students' post-test marks in PAL group were higher than the regular module group (12±2.9 vs 9.8±3.5, p<0.01). Majority (70%) of the students agreed that PAL is a better method of learning and develops teaching attitude. Most of the students strongly agreed that PAL provides friendly environment for learning (80%). About 70% of students gave positive response about need of similar sessions in the future.

Conclusion: PAL is an interesting and exciting teaching-learning methodology in undergraduate medical training.

Keywords: Educational study, Medical education project, Teaching-learning methodology

INTRODUCTION

The PAL is a well-recognised teaching-learning methodology in medical education. It is an innovative approach of learning involving a process of socialisation among students [1]. Teaching medical students is one of the important tasks for all medical teachers along with their valuable contribution in patient care and research. It is reflected by the word itself, as "doctor" comes from the Latin word "docere" which means "to teach" [2].

From the student's point of vision, PAL is a combined and cooperative learning strategy which provides numerous advantages such as close communication between tutee and tutor. This close association could make possible group debate which is difficult to perform in the company of well-known faculty staff. The teaching action by itself can progress tutor's understanding of the subject and thereby give them a chance to steadily increase their self-confidence and facilitate them to encourage their communication skills essential for better teaching as new educators [3,4].

National Medical Commission (NMC) of India has implemented the Competency Based Medical Education (CBME) curriculum for medical students to improve the quality of medical education with the growing needs of the country. NMC endorses the role of IMG from a clinician to a communicator, leader, teacher and a member of the healthcare team [5].

Many studies have been conducted on PAL that found significant results in terms of students developing positive attitude towards teaching, opportunities for networking among themselves [6,7]. This study was conducted to find out many other aspects of teaching learning methodologies such as if the PAL method has an advantage over the regular teaching method in terms of developing teaching attitude, students' self-confidence, if it provides comfortable teaching environment, better knowledge retention, cordial environment for learning, if it is a better method of learning and if it improves

professional bonding between the students. The study also wanted to find if PAL has an edge over regular teaching method in terms of academic performance of the students. This study was conducted to understand if PAL could be introduced as a new teaching modality in the institute for the first-year medical students.

MATERIALS AND METHODS

An observational study was conducted in Karpagam faculty of Medical Sciences, Coimbatore for a period of two months (November 2018 to December 2018). The study population was first year undergraduate medical students and the study commenced after obtaining ethical clearance (IHEC/150/physiology/10/2018) from the Institutional Ethics Committee.

Inclusion criteria: First year MBBS students and final year medical students willing to participate in study were included.

Exclusion criteria: Students not willing to participate in the study were excluded.

Sample size calculation: Assuming a 50% agree towards PAL and using the formula $n = (z_{\alpha/2})^2 pq/d^2$ ($z_{\alpha} = 1.96$, $p = 50$, $q = 50$, $d = 10$) where, n is sample size, $z_{\alpha/2}$ is normal deviate for two-tailed alternative hypothesis at a level of significance, p is expected proportion, q is 100-p, d is absolute precision. Using the formula, total sample size was calculated as 100 subjects [8].

Informed consent was obtained from 100 first year MBBS students who were willing to participate in the study. Sample was randomly divided into two groups with 50 students each as regular and PAL modules. In regular module group, faculty was the tutor and the first year MBBS students were the tutee. In PAL module, the first year MBBS students (tutee) were taught by a previously trained final MBBS (senior) students (tutor). In PAL module, senior medical students were trained on the clinical-practical basics of how to structure a lesson plan and ask effective questions and were allowed

to practice the teaching skills. After training, the senior medical students taught the junior students. In the regular module, the first MBBS students were taught the same clinical practical topic by the faculty (tutor). The duration of each session was one hour and the topic was measurement of blood pressure.

In the PAL module, one senior student taught 10 junior students, so a total of five senior students taught 50 junior students. In this experimental set up, two practical sessions were conducted, one for each group. After each session, cross over was done i.e., students in regular module were exposed to PAL module and vice versa.

At the beginning and end of session, the students were assessed by Objective Structured Practical Examination (OSPE) test. A feedback about PAL module was obtained from the students using a questionnaire consisting of 16 questions, of which eight questions related to socio-demographic details and eight questions on PAL module. The student feedback evaluation was done using a five-point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree) to assess their learning experience, perception towards the activity, and the level of satisfaction with the activity [3].

STATISTICAL ANALYSIS

Statistical analysis was carried out using software R version 3.6. Continuous variables were expressed as mean and standard deviation and categorical variables were presented as counts and percentages. Scores of pre and post intervention tests of two modules were presented as Mean±SD. Paired t-test was used for assessing effectiveness of educational methods. The p-value <0.05 was considered statistically significant.

RESULTS

Out of 250 MBBS students invited, 105 students (42%) participated in the study. This included 100 first year MBBS students belonging to age group of 18 to 19 years (50 females and 50 males); and five final year MBBS students belonging to age group of 21 to 22 years (three females and two males). The post-test scores in PAL module were higher than regular module (12±2.9 vs 9.8±3.5, p<0.01) [Table/Fig-1].

Learning level	Regular module (n=50)	PAL module (n=50)	p-value
Post-test	9.8±3.5	12±2.9	<0.01
Pre-test	7.6±1.9	7.1±2.5	0.59

[Table/Fig-1]: Effects of PAL and Lecture methods on learning level. Data are in mean±SD, p-value was determined using Paired t-test; PAL: Peer assisted learning p-value <0.05 considered significant

[Table/Fig-2] shows the response of students towards the effect of PAL on learning status. Majority (70%) of the students agreed that PAL is a better method of learning and develops teaching attitude.

Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
PAL develops teaching attitude	2%	3%	2%	23%	70%
PAL improves self confidence	1%	4%	2%	25%	68%
PAL makes teaching environment comfortable	3%	6%	0%	30%	61%
More topics can be taught using PAL	0%	2%	2%	24%	72%
PAL is a better method of learning	0%	2%	1%	23%	74%
PAL provides a cordial environment	1%	3%	0%	16%	80%
PAL provides better knowledge retention	2%	6%	2%	21%	69%
PAL improves professional bonding	0%	1%	0%	28%	71%

[Table/Fig-2]: Response of students towards effect of PAL. PAL: Peer assisted learning

Most of the students strongly agreed that PAL provides friendly environment for learning (80%).

DISCUSSION

The study showed that PAL develops better teaching attitude and helps in improving the self confidence of the students. It also suggests that PAL provides better knowledge retention and improves professional bonding among students. [Table/Fig-3] shows comparison of the present study results with other studies [6,7,9-11].

Similar published articles	Our study findings
Sangwan V et al., found that PAL is a better method of teaching that develops positive attitude towards teaching and it strappingly enhances the learning of tutors and their communication skills [6].	70% of our study participants agreed develops teaching attitude. Half of the that PAL is an exciting teaching-learning method which promotes in depth learning.
more comfortable asking questions to their peers with less fear of being judged. This also provides opportunities for networking within the class [7].	More than half of our study participants agreed that PAL makes teaching environment comfortable and cordial. They also agreed PAL improves professional bonding.
In a study conducted in Netherlands, majority of students agreed that peer teachers performed well in their teaching roles and can serve as effective teachers [9].	More than half participants of our study agreed that peer teaching environment was very friendly for learning.
Bulte C et al., in their study found that the majority of tutee and tutors acknowledged information provider, role model, and facilitator as suitable roles for peer tutors [10].	Our study shows that PAL provides a cordial environment for students to study and learn skills including leadership, presentation, and communication, all of which are very essential to practice modern medicine. Better understanding of teaching and learning principles during PAL make the students better learners.
In a study conducted by Siddiqi HS et al., Peer Assisted Learning was found to promote learning by creating an informal student-friendly learning environment [11].	

[Table/Fig-3]: Comparison of index study with existing literature. PAL: Peer assisted learning

PAL has a positive effect on the learning due to the preparation, motivation involved in teaching. It also advocates that medical students are proficient in shaping quality PAL programmes, and the feedback from tutee students can help them improve their enthusiasm, teaching skills and confidence levels to conduct similar programmes in future [12].

The medical colleges/teaching institutions can utilise PAL as one of the teaching learning methodology. Thus, the abets of PAL are not just restricted to students but also encompasses the medical institutions [13].

Limitation(s)

The training of staff and students, construction of learning resources, and evaluation design, all require faculty as well as students' time. The study involved only one clinical-practical topic. Selection of student tutors was based on voluntary willingness, which could have been done in some other systemic selection methodology.

CONCLUSION(S)

PAL could play a useful role in an undergraduate medical education. It is an exciting teaching-learning method in undergraduate medical students and has the benefits of increasing teaching skills of students. However, further research is needed to clearly launch the methodology for identification, selection and training of the student tutors.

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